Service Manual

Sec. 1 | Service Information

Sec. 2 Electrical Adjustment

Sec. 3 | Schematic Diagrams

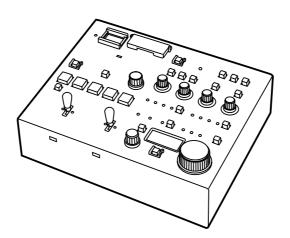
Sec. 4 | Circuit Board Diagrams

Sec. 5 Exploded Views &

Replacement Parts List

Camera Controller

AK-HRP900P





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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Specifications

Power supply: DC +12V (XLR 4-pin connector)
Power consumption: 5 W (camera controller only)

is the safety information.

Swivel stand control input: Control signal (RJ-45 8P modular jack)

System tally input: Tally signal (2P connector block)

Switch function: Power control, preset memory, preset position select,

speed polarity change, menu ON/OFF, menu operation, operation panel active, scene file select, mode select, auto white start, auto black start, ND filter select, CC filter select, gain select, shutter select, lens iris auto/manual select, indication change, zoom operation lever direction change, focus adjust direction change.

Adjusting function: Iris (lens iris), zoom, focus, R/B gain, master pedestal,

R/B pedestal

Connection cable: Multi-cable 1 pc Cable max. extension distance: 33 ft (10m)

Operating temperature range: 32°F to 104°F (0°C to +40°C)

Dimensions: 8-5/16(W) 3-1/2(H) 6-15/16(D) inch

(210 88 176 mm)

Weight: Approx. 3.3 lbs (1.5kg)

Finish: AV ivory coating (Munsell 7.9Y 6.8/0.8 approx. color)

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

Accessories

Coupling1 pc	Setscrews8 pcs
Multi-cable 1 pc	M4 x 8 mm 4 pcs
Seal	M5 x 8 mm 4 pcs

SAFETY PRECAUTIONS

GENERAL GUIDELINES

- When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been over-heated or damaged by the short circuit.
- After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
- After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

- Unplug the AC cord and connect a jumper between the two prongs on the plug.
- 2. Measure the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. The resistance value must be more than $5M\Omega$.

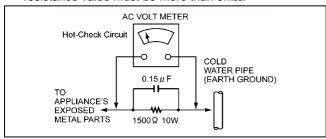


Figure1

LEAKAGE CURRENT HOT CHECK (See Figure 1)

- Plug the AC cord directly into the AC outlet.
 Do not use an isolation transformer for this check.
- 2. Connect a $1.5 \mathrm{K}\Omega$, 10W resistor, in parallel with a 0.15μ F capacitor, between each exposed metallic part on the set an a good earth ground such as a water pipe, as shown in Figure1.
- 3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
- 4. Check each exposed metallic part, and measure the voltage at each point.
- Reverse the AC plug in the AC outlet repeat each of the above measurements.
- 6. The potential at any point should not exceed 0.15 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 0.1 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

ABOUT LEAD FREE SOLDER (PbF)

Distinction of Pbf PCB:

PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

Caution:

- Pb free solder has a higher melting point than standard solder; Typically the melting point is 50–70°F (30-40°C) higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 700±20°F (370±10°C).
- Pb free solder will tend to splash when heated too high (about 1100°F/600°C).

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically sensitive (ED) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

- Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground.
 - Alternatively, obtain and wear a commercially available discharging wrist trap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
- After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
- Use only a grounded tip soldering iron to solder or unsolder ES devices.
- 4. Use only an anti-static solder removal device classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
- Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
- 6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it.
 - (most replacement ES devices are package with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).
- 7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
 - CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
- Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise hamless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).





CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE
COVER (OR BACK).
NO LISER SERVICE AND E PARTS INCIDE

NO USER SERVICÈABLE PARTS INSIDE. REFER TO SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

· · · · · · · · · · · · · For CANADA

This class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

FCC Note:

This device complies with Part 15 of the FCC Rules. To assure continued compliance follow the attached installation instructions and do not make any unauthorized modifications.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

12 Volt Class II Power Supply Only. (For Example: AW-PS505P)

The serial number of this product may be found on the bottom of the unit.

is the safety information.



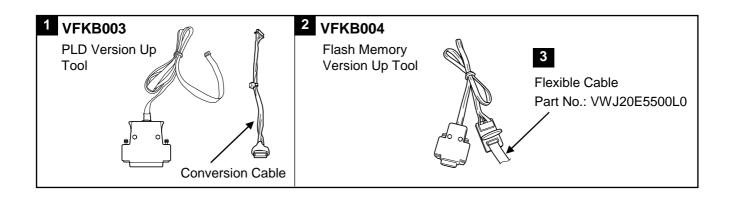
SERVICE INFORMATION

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1. SERVICING FIXTURES & TOOLS

NO.	PARTS NO.	FIXTURE & TOOL NAME	REMARKS
1	VFKB003	PLD Version Up Tool	Conversion Cable: Only used for programming TG P.C.Board PLD of AK-HC930P/931P with data.
2	VFKB004	Flash Memory Version Up Tool	
3	VWJ20E5500L0	Flexible Cable	Flash Memory Version Upgrade



2. INTERNAL SWITCH SETTING

The setting contents of the setting switches on each circuit board are shown below.

■SW1 (Camera Number External Input (4 bit) Setting)

P.C.BOARD	REF. NO.	SW#	SETTING	FUNCTION
ROP CPU	SW1	1-4	OFF	OFF: Ineffective ON: Effective

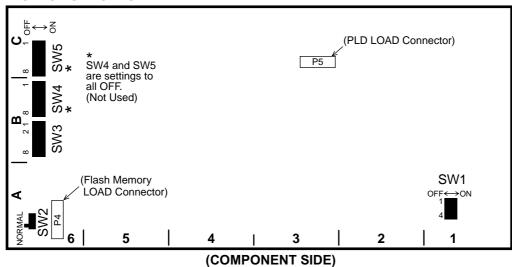
■SW2 (Program ROM Write Mode Setting)

P.C.BOARD	REF. NO.	SETTING	FUNCTION
ROP CPU	SW2	NORMAL	Normal Mode

■SW3 (Communication Speed Setting etc.)

P.C.BOARD	REF. NO.	SW#	SETTING	FUNCTION
ROP CPU	SW3	1	OFF	1-OFF,2-OFF: 125K bit/Sec
		2	ON	1-ON,2-OFF: 9600 bit/Sec 1-OFF,2-ON: 38.4K bit/sec
		3-8	OFF	Not Used

ROP CPU P.C.BOARD



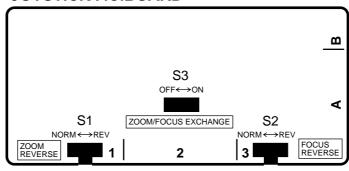
■S1,S2 (Zoom and Focus Joystic Operating Direction Reverse Setting)

P.C.BOARD	REF. NO.	SW#	SETTING	JOYSTICK OPERATING DIRECTION
JOYSTICK		ZOOM REVERSE	NORM	Not Reversed (Same as the Unit indication.)
		FOCUS REVERSE	NORM	Not Reserved (Same as the Unit indication.)

■S3 (Zoom and Focus Joystic Position Exchange Setting)

P.C.BOARD	REF. NO.	SW#	SETTING	JOYSTICK POSITION
JOYSTICK		ZOOM/ FOCUS EXCHANGE		Not Exchanged (Same as the Unit indication.)

JOYSTICK P.C.BOARD



(COMPONENT SIDE)

3.SOFTWARE VERSION UPGRADE METHOD

3-1. Software and LOAD Connector Contents

3-1-1. Flash Memory

P.C.BOARD	CN.NO.	AREA	SOFTWARE VERSION	DETAILS
ROP CPU	P4	Software	V01.***	Rop_Sys.Bin

3-1-2. PLD

P.C.BOARD	CN.NO.	JCF FILE	POF FILE
ROP CPU	P5	No Use	ropdec*.pof

3-2. Flash Memory Version Upgrade Procedure

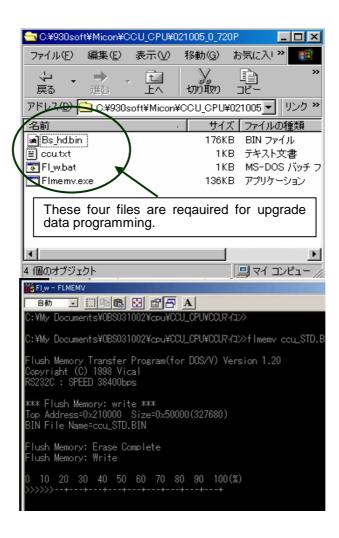
3-2-1. Preparation Items Required

- Personal Computer
- Flash Memory Version Up Tool (VFKB004)
- Flexible Cable (VWJ20E5500L0)
- Upgrade Data

3-2-2. Version Upgrade Procedure

- 1. Connect the Flash Memory Version Up Tool to the serial port of the personal computer.
- 2. Connect the flexible cable to the Flash Memory Version Up Tool and to the LOAD connector of the P.C. board with which the software is to be programmed.
- 3. Change the LOAD SW of the P.C. board with which the software is to be programmed from "NORM" to "LOAD."
- 4. Open the folder of the CPU writing software, and check that the four types of files of bin (*.bin), text (*.txt), batch (*.bat) and application (flmemv.exe) are available within the folder same as the software to be programmed (*.bin).
- 5. Turn the unit on, and double-click the bat file in the folder.
- 6. The writer starts to program the P.C. board with upgrade data. This programming process is completed when the messages "ERASE", "WRITE" and "COMPLETE" are displayed on the Screen.
- 7. After the programming process is finished, turn the unit off, and disconnect the flexible cable from the software writer and the P.C. board. Then return the LOAD SW from LOAD to NORM.

<Example of file>



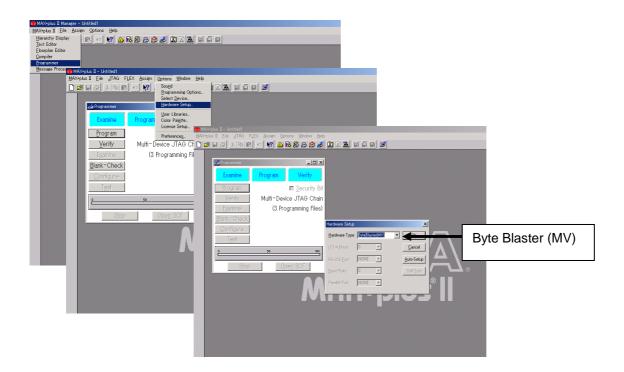
3-3. PLD Version Upgrade Procedure

3-3-1. Preparation Items Required

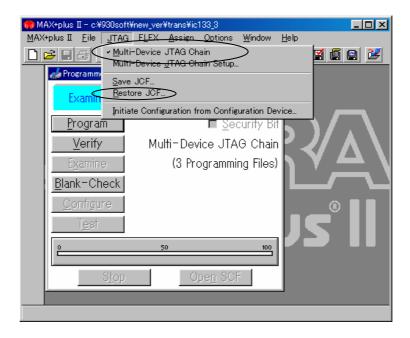
- Personal Computer (with WINDOWS95 or 98 and MAX+plus II software (only Ver.10.1 compatible) installed)
- MAX+plus II Software: www.altera.com/pub/software/asap2.exe
 Download from above URL and then install to any directory of PC.
- PLD Version Up Tool (VFKB003)

3-3-2. Version Upgrade Procedure

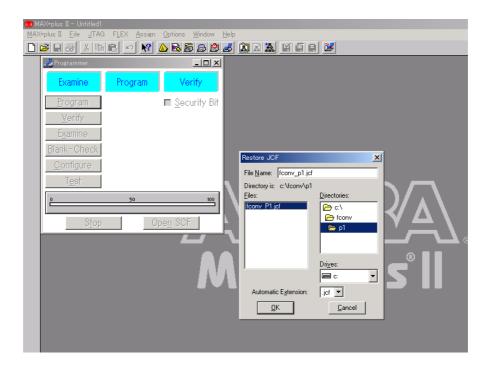
- 1. Boot up the personal computer, and start MAX+plus II.
- 2. Open Programmer within MAX+plus II on the toolbar.
- 3. Open Options within the toolbar, and set the Hardware type on Hardware setup to Byte Blaster (MV).



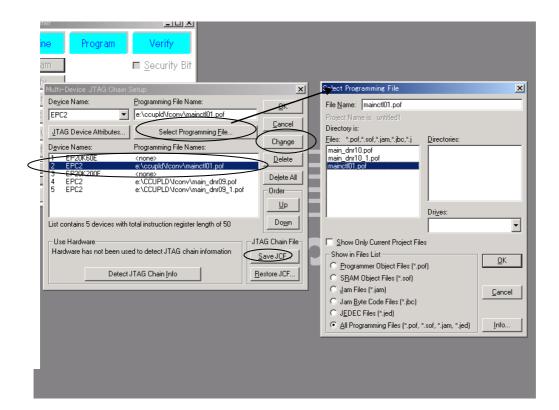
- 4. Select Multi-Device JTAG Chain from JTAG within the toolbar.*The SET UP screen appears when MAX+plus II is initially started now.
- 5. Be sure that the Multi-Device JTAG Chain within JTAG on the toolbar is checked, and then select Restore JCF.



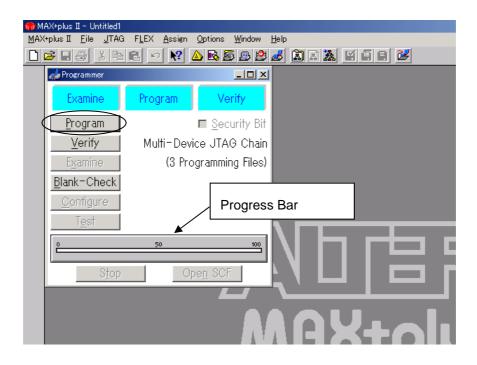
6. Select a JCF file use from the Restore JCF screen after selecting Restore JCF in step 5.



- 7. The programming device is displayed in the middle of Multi-Device JTAG Chain Set Up screen. Select one file except for programming files named <NONE>.
- 8. Click Select Programming file, and select a file name (*.pof) to be changed. Then click Change.
 - *1: The SET UP screen appears after the message "I/O ERROR" is displayed and OK is selected when JTAG is initially used.
 - *2: The JTAG file requires setting if it is copied from another personal computer or whenever the folder is moved within the personal computer.
- 9. To change another file among several pof files, repeat steps 7 and 8 as described above.
- 10. After all files within JTAG are successfully changed, click OK on the SET UP WINDOW. (It is also possible to save the file by clicking SAVE JCF.)

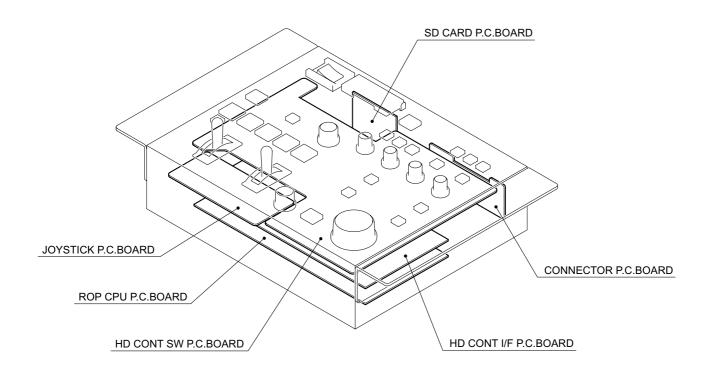


- 11. Connect the Byte Blaster to the personal computer and to the connector of unit to be programmed, and turn the unit on.
- 12. After the unit is completely turned on, click Program on the Programmer to start programming. The upper section of screen shows the messages "Examine" → "Program" → "Verify" in orderly sequence until the progress bar reaches 100, and then the programming process is finished when the message "Programming complete" is displayed.



- 13. After all operations are completed, turn the unit off, and disconnect the PLD Version Up Tool from the unit.
 - * If using the saved JCF files, perform steps 1 to 6, 11 and 12 as described above.

4. CIRCUIT BOARD LAYOUT DRAWING



SECTION 2

ELECTRICAL ADJUSTMENT

CONTENTS

1.	MAIN UI	NIT	ELE-1
	1-1.	DC Voltage Confirmation	ELE-1

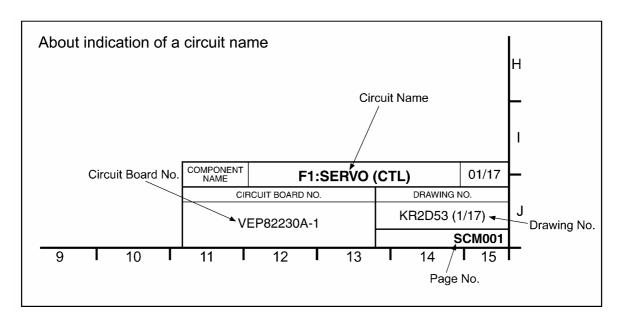
1. MAIN UNIT

1-1.DC Voltage Confirmation

BOARD	ROP CPU P.C.BOARD			
TP	C26, C28, C31 (+ side)			
	on the ROP CPU P.C.Board			
M. EQ	Digital Voltmeter			
SPEC.	C26 (+ side): +12.0 V ± 0.6 V			
	C28 (+ side): +5.0 V ± 0.25 V			
	C31 (+ side): +3.0 V ± 0.15 V			

- Connect the Digital Voltmeter to + side of C26 on the ROP CPU P.C.Board, confirm that the DC Voltage is within the specifications.
- 2. Connect the Digital Voltmeter to + side of C28 on the ROP CPU P.C.Board, confirm that the DC Voltage is within the specifications.
- 3. Connect the Digital Voltmeter to + side of C31 on the ROP CPU P.C.Board, confirm that the DC Voltage is within the specifications.

SCHEMATIC DIAGRAMS



NOTE:

BE SURE TO MAKE YOUR ORDERS OF REPLACEMENT PARTS ACCORDING TO PARTS LIST, SECTION 5

CAUTION

THE MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.

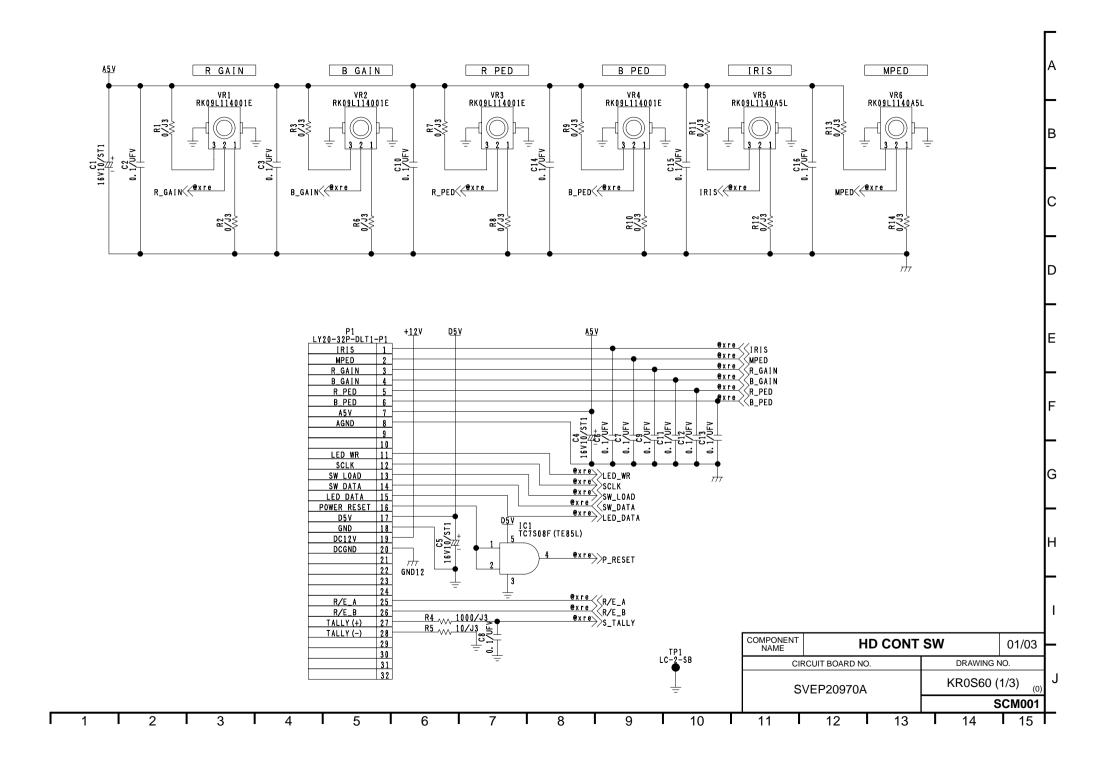
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

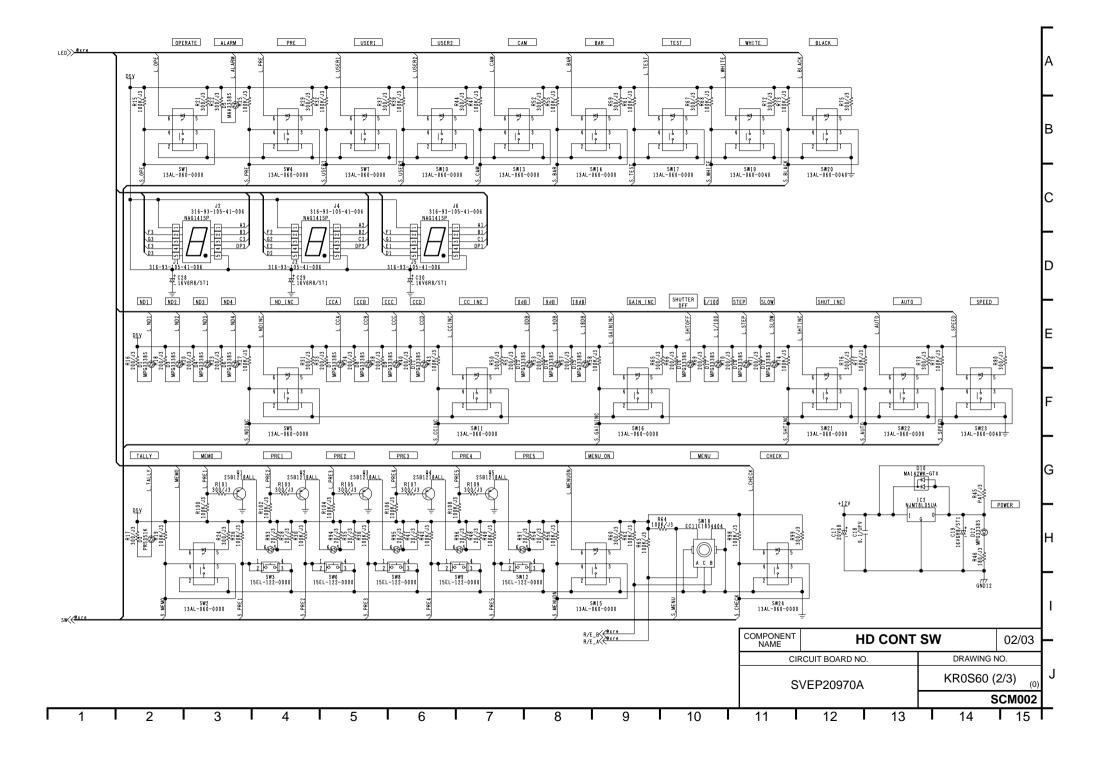
IMPORTANT SAFETY NOTICE:

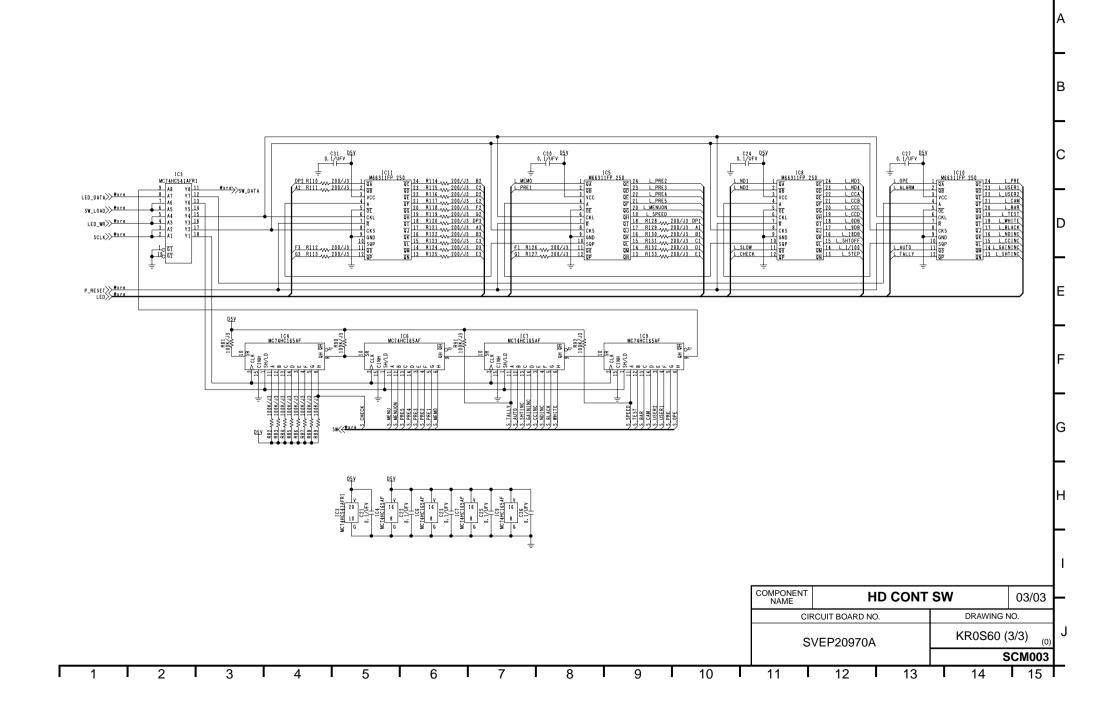
COMPONENTS IDENTIFIED WITH THE MARK A HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

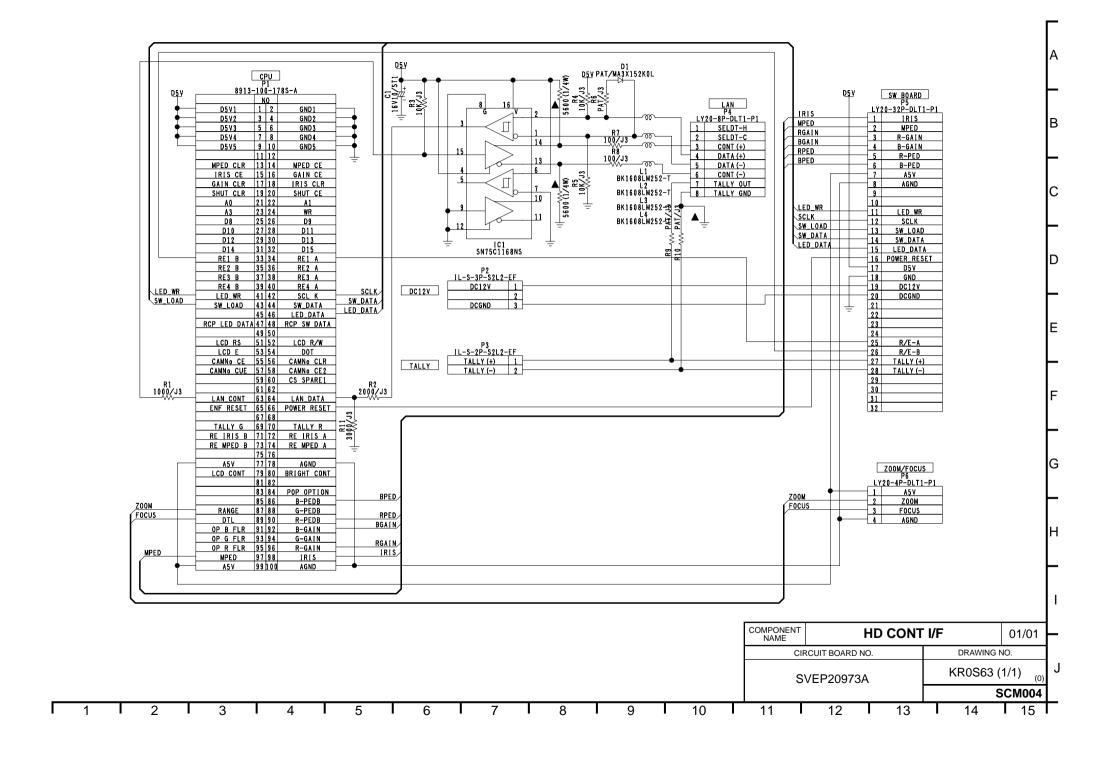
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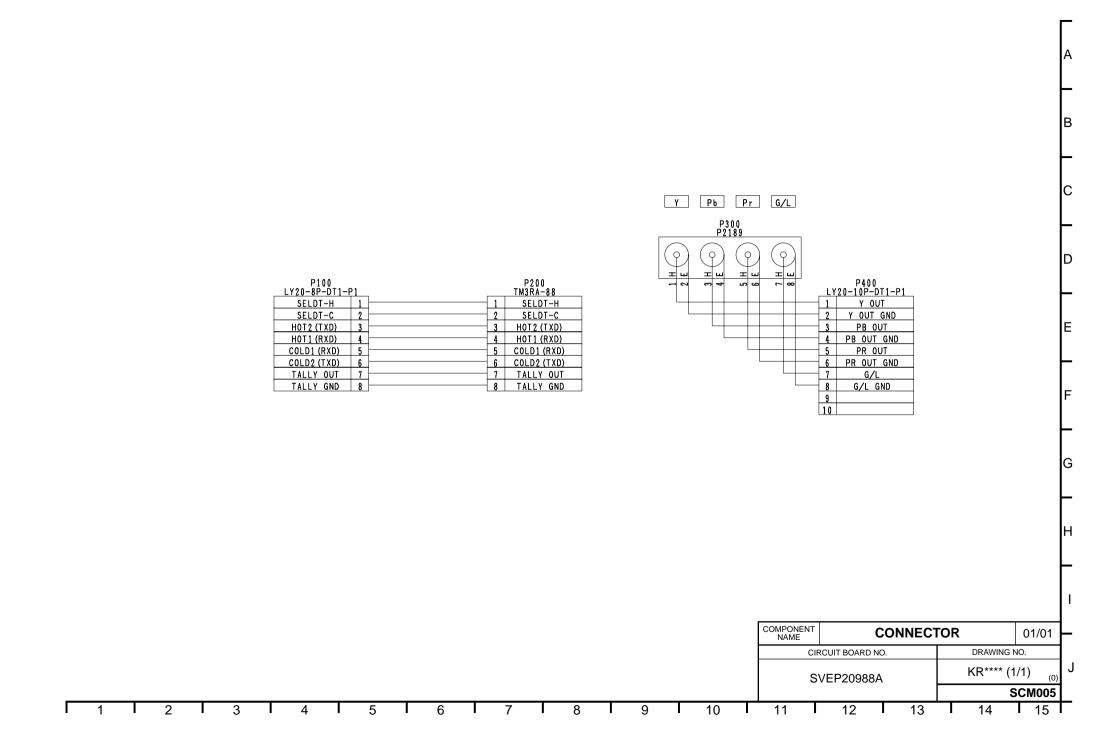
HD CONT SW	
HD CONT SW (1/3)	SCM001
HD CONT SW (2/3)	SCM002
HD CONT SW (3/3)	SCM003
HD CONT I/F	
HD CONT I/F (1/1)	SCM004
CONNECTOR	
CONNECTOR (1/1)	SCM005
JOYSTICK	
JOYSTICK (1/1)	SCM006
SD CARD	
SD CARD (1/1)	SCM007
	SCM007
SD CARD (1/1)	
SD CARD (1/1)	SCM008

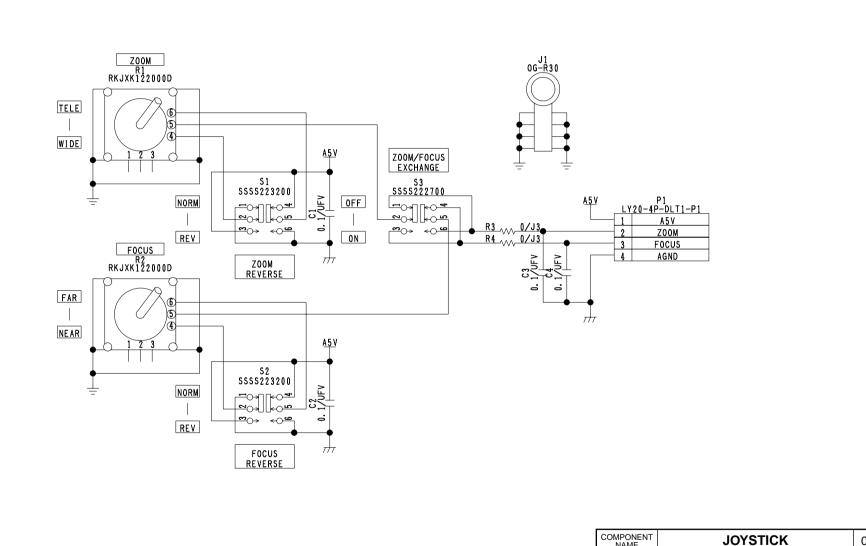




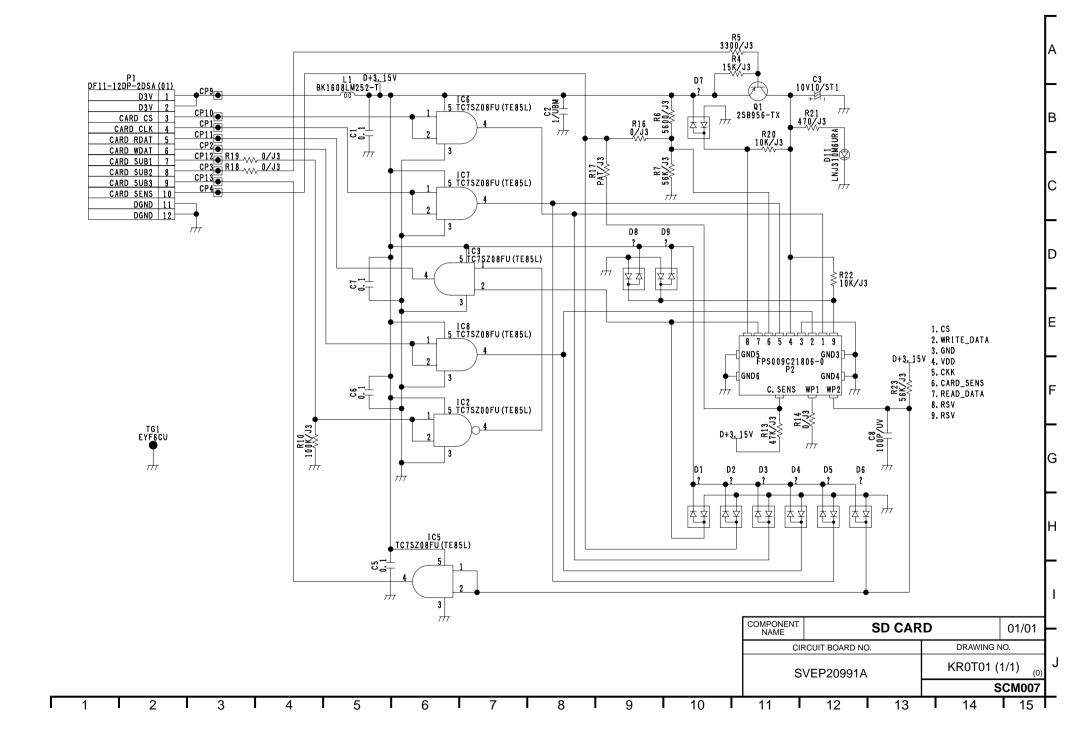


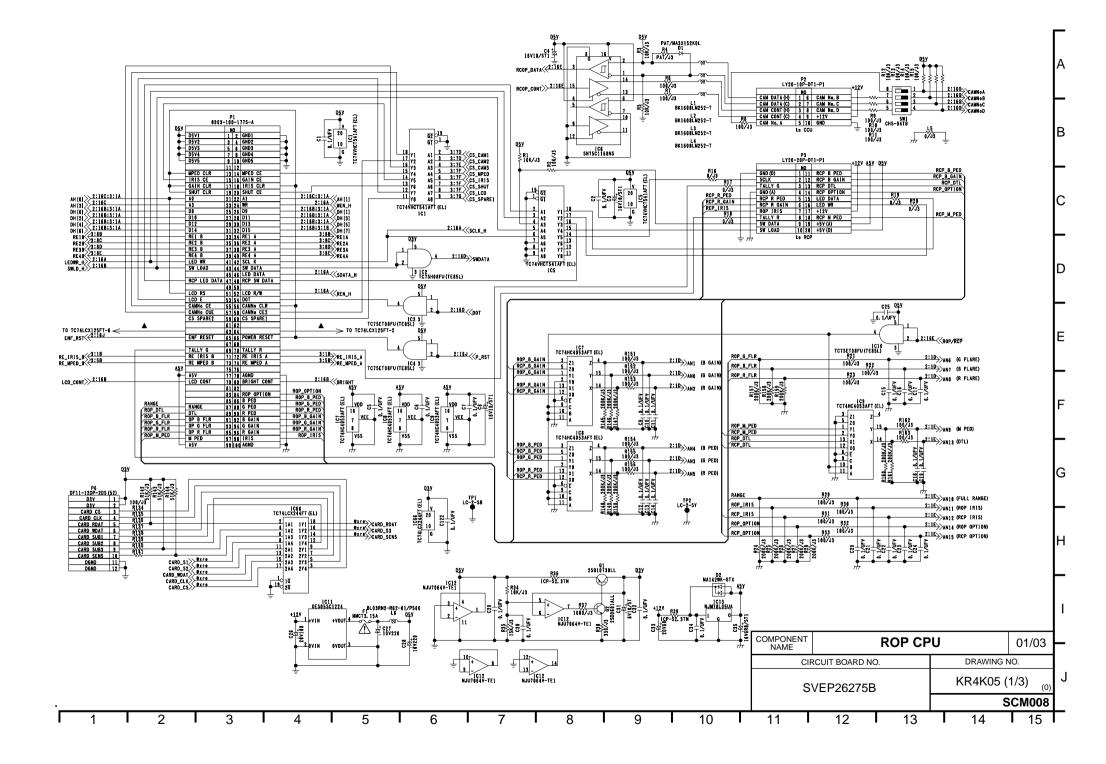


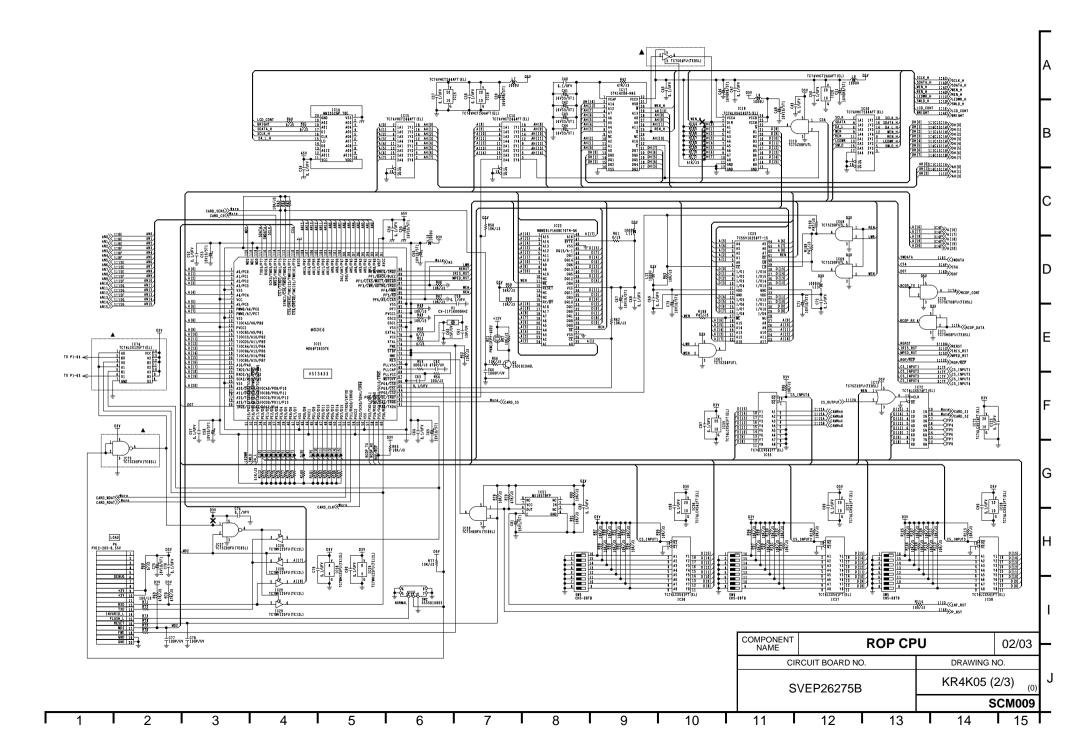


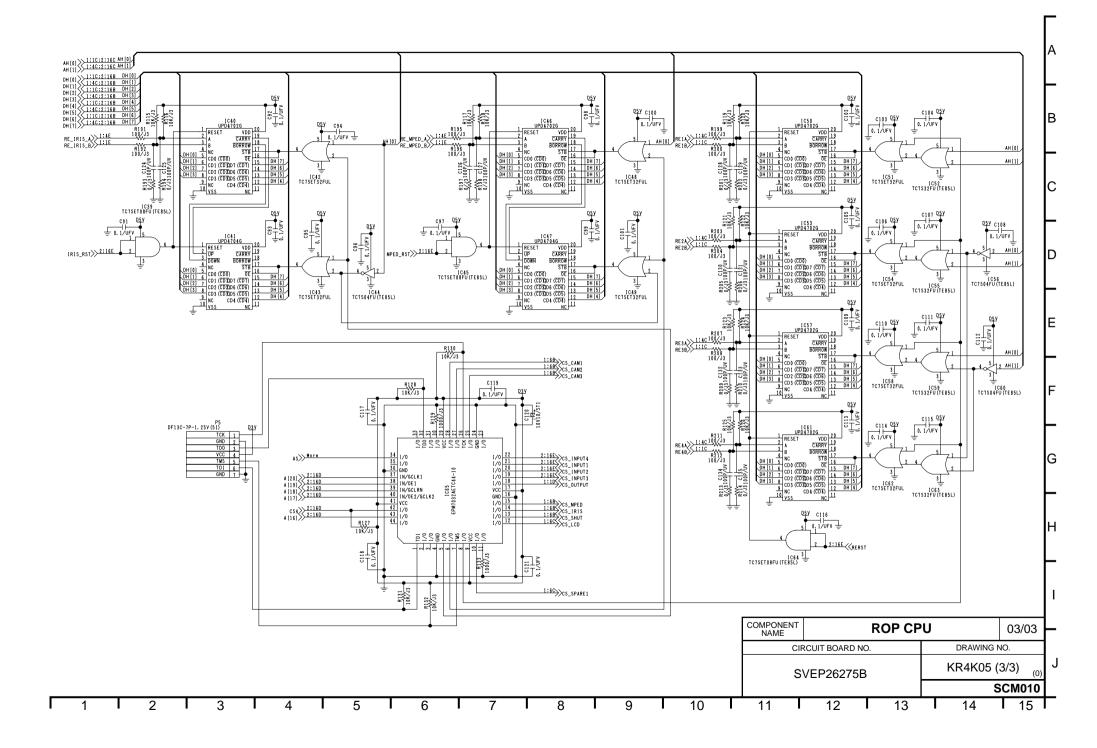


											COMPON NAME			,	JOYSTI	CK		0	1/01	_
												CIR	CUIT BOAR	D NO.			DRAWING	NO.		
												SV	EP2098	39A			KR0S99	(1/1) (0)	J
																		SCI	M006	
3	-	4	5	6	7		8	T	9	10	11		12		13		14		15	_









CIRCUIT BOARD DIAGRAMS

NOTE:

BE SURE TO MAKE YOUR ORDERS OF REPLACEMENT PARTS ACCORDING TO PARTS LIST, SECTION 5

CAUTION

THE MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.

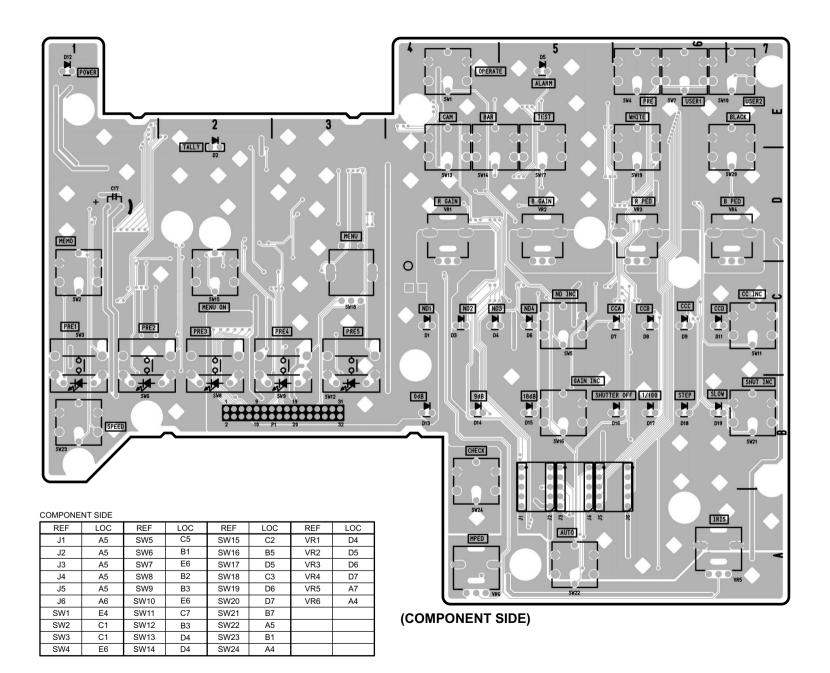
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED WITH THE MARK \triangle HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

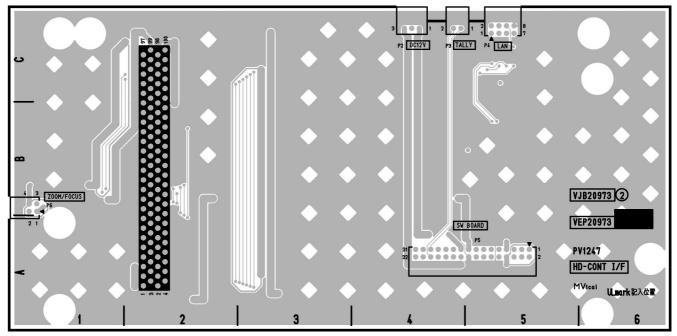
CONTENTS

HD CONT SW P.C.BOARD (SVEP20970A)	CBA-1
HD CONT I/F P.C.BOARD (SVEP20973A)	CBA-3
CONNECTOR P.C.BOARD (SVEP20988A)	CBA-4
JOYSTICK P.C.BOARD (SVEP20989A)	CBA-5
SD CARD P.C.BOARD (SVEP20991A)	CBA-6
ROP CPU P.C.BOARD (SVEP26275B)	CBA-7

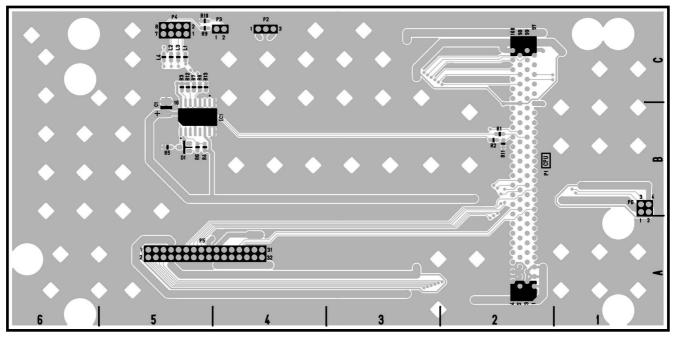


HD CONT I/F P.C.BOARD (SVEP20973A)

COMPONENT SIDE								
REF	LOC							
P2 C4								
P3	C4							
P4	C5							
P5 A5								
P6	B1							



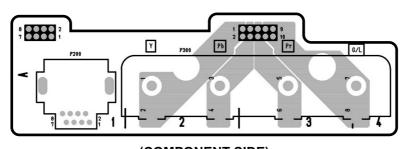
(COMPONENT SIDE)



(FOIL SIDE)

CONNECTOR P.C.BOARD (SVEP20988A)





(COMPONENT SIDE)

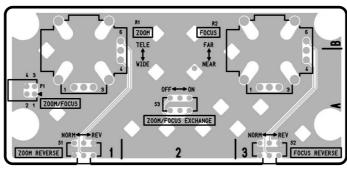


| VJB20988 | VEP20988 | VEP2098

JOYSTICK P.C.BOARD (SVEP20989A)

COMPONENT SIDE

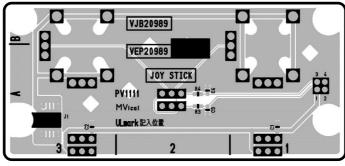
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P1	A1
S1	A1
S2	A3
S3	A2



(COMPONENT SIDE)

FOIL SIDE

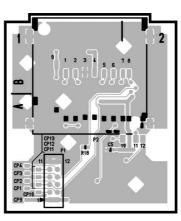
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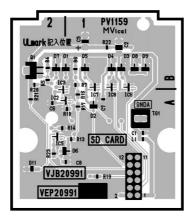
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SD CARD P.C.BOARD (SVEP20991A)

COMPONENT SIDE									
REF	REF LOC								
P1	A1								
P2	A1								



(COMPONENT SIDE)



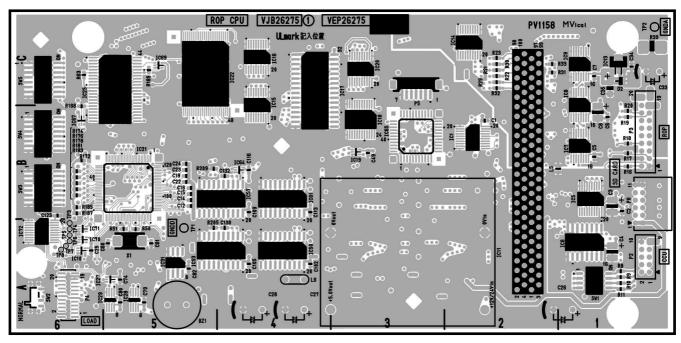
(FOIL SIDE)

TG1

ROP CPU P.C.BOARD (SVEP26275A)

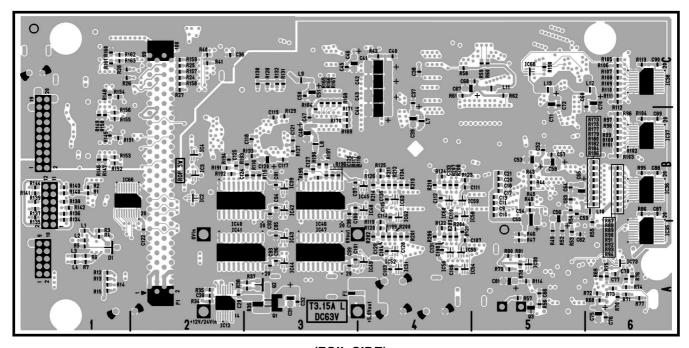
COMPONENT SIDE

CONFONE	INT SIDE												
REF	LOC	REF	LOC	REF	LOC	REF	LOC	REF	LOC	REF	LOC	REF	LOC
IC1	B2	IC11	A2	IC19	В3	IC29	A5	IC65	В3	P3	B1	SW4	B6
IC5	B1	IC13	C1	IC20	C3	IC31	A5	IC67	В6	P4	A6	SW5	C6
IC6	A1	IC14	C2	IC21	B5	IC50	A4	IC69	C5	P5	C3	TP1	A5
IC7	B1	IC15	C4	IC22	C4	IC53	A5	IC70	A6	P6	B1	TP2	C1
IC8	C1	IC16	C4	IC23	C6	IC57	B4	IC71	A6	SW1	A1		
IC9	C1	IC17	C3	IC27	A5	IC61	B4	IC72	A6	SW2	A6		
IC10	A6	IC18	В3	IC28	A5	IC64	B4	P2	A1	SW3	В6		



(COMPONENT SIDE)

FOIL SIDE													
REF	LOC	REF	LOC	REF	LOC	REF	LOC	REF	LOC	REF	LOC	REF	LOC
IC2	B2	IC36	В6	IC42	B3	IC48	B4	IC56	A4	IC66	B1	Q3	A5
IC3	B2	IC37	B6	IC43	A3	IC49	A4	IC58	B4	IC68	C5		
IC4	B2	IC38	C6	IC44	A3	IC51	A4	IC59	B4	IC73	A6		
IC12	A2	IC39	В3	IC45	B4	IC52	A4	IC60	B4	P1	A2		
IC30	A5	IC40	A2	IC46	A3	IC54	A4	IC62	B4	Q1	A3		
IC35	A6	IC41	A2	IC47	A3	IC55	A4	IC63	B4	Q2	A3		



(FOIL SIDE)

EXPLODED VIEWS REPLACEMENT PARTS LIST

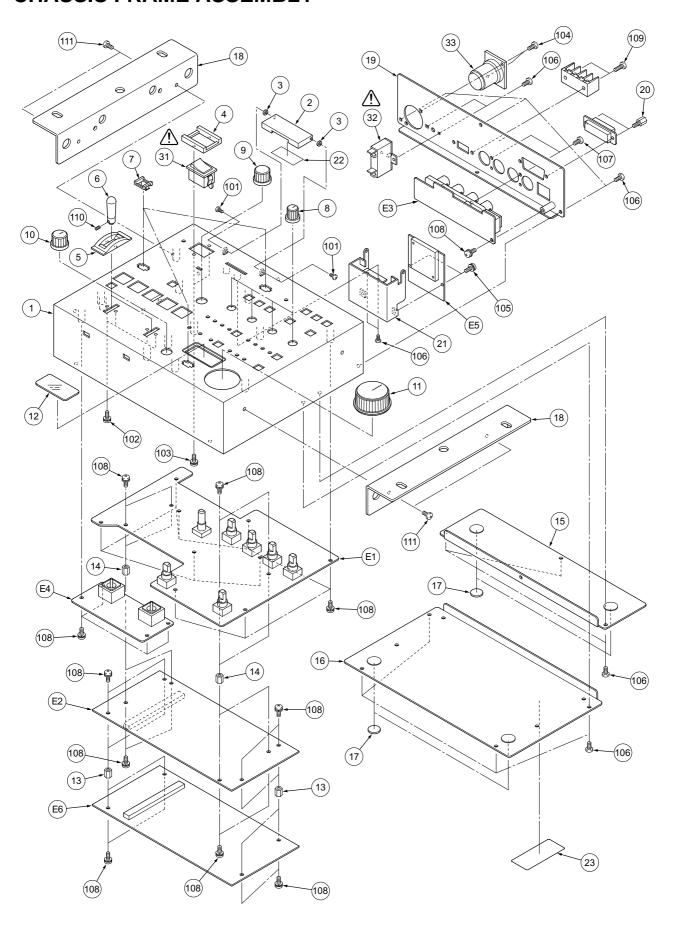
Note:

- 1. *Be sure to make your orders of replacement parts according to this list.
- 2. Unless otherwise specified, all resistors are in OHMS, K=1,000 OHMS, all capacitors are in MICROFARADS (μF), P=μμF.
- The P.C. Board unit marked with "■" shown below the main assembled parts.
- 4. The parts marked with (£) on the5. IMPORTANT SAFETY NOTICE The parts marked with Eon the exploded view show the electric parts.
- - Components identified with the mark \triangle have the special characteristics for safety. When replacing any of these components, use only the same type.
- 6. The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.
- 7. "M" in Remark column indicates needed in the periodical maintenance.

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ELECTRICAL REPLACEMENT PARTS LIST	PRT-4

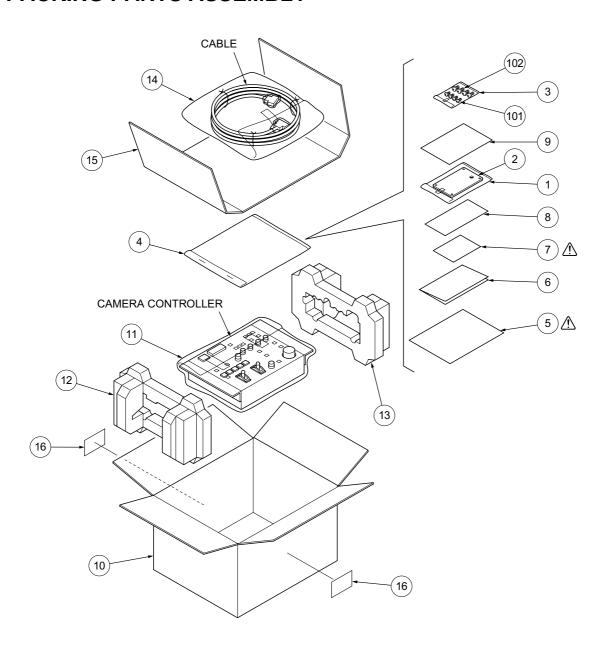
CHASSIS FRAME ASSEMBLY



CHASSIS FRAME ASSEMBLY

f.No.	Part No.	Part Name & Description	Pcs	Remarks		Ref.No.	Ref.No. Part No.	Ref.No. Part No. Part Name & Description
_		UPPER PANEL SD CARD LID	1					
_	MX3250	SD CARD LID SPACER	2		t			
	GL1034 GK2838-1	POWER SWITCH GUARD JOYSTICK GUARD	1		ŀ			
		JOYSTICK GUARD	2		ŀ			
т	D446MR07A	BUTTON GUIDE	3		t			
_		KNOB	4					
_		MENU KNOB M-PED KNOB	1		ŀ			
_		IRIS KNOB	1					
		INDICATION PLATE	1					
		SUPPORT SUPPORT	4					
		BOTTOM CASE	1			t		
_		BOTTOM PLATE	1			L		
		RUBBER FOOT	4			L		
		RACK ANGLE REAR PANEL	1					
VI	MS7455	D-SUB SUPPORT	2					
_		SD CARD HINGE	1			<u> </u>		
_		SD CARD LABEL SELECTION SWITCH LABEL	1		 	 		
							_	
		POWER SWITCH	1					
		BREAKER CONNECTOR	1			 	_	
K	1AA 104H0015	CONNECTOR	1				_	
	OH2 DAET!	ecpew.					-	<u> </u>
		SCREW SCREW	4		-	 	_	+
_		SCREW	2				-	
		SCREW	2					
		SCREW SCREW	14			1		
		SCREW	2			1		
Ϋ́	YN3+J6FN	SCREW	26					
		SCREW	2				_	
		SCREW SCREW	4			1		
							_	
51	VEP20970A	HD CONT SW P.C.BOARD	1					
		HD CONE I/F P.C.BOARD	1					
		CONNECTOR P.C.BOARD	1					
		JOYSTICK P.C.BOARD SD CARD P.C. BOARD	1					
		ROP CPU P.C.BOARD	1					
						<u> </u>	-	
							_	
							_	
						1		
						1		
						<u> </u>		

PACKING PARTS ASSEMBLY



Ref.No.	Part No.	Part Name & Description	Pcs	Remarks		Ref.No.	Ref.No. Part No.	Ref.No. Part No. Part Name & Description	Ref.No. Part No. Part Name & Description Pos
1	YWT15X20C03	POLYETHYLENE BAG	1		101		XSB4+8FN	XSB4+8FN SCREW	XSB4+8FN SCREW 4
2	VMA0R02	JOINT ANGLE	1		102		XSB5+8FN	XSB5+8FN SCREW	XSB5+8FN SCREW 4
3	YWT050803	POLYETHYLENE BAG	1						
4	PE26X40C05B	POLYETHYLENE BAG	1			L			
5	VQT0A79-1	OPERATING INSTRUCTIONS	1			L			
6	VQA0689	SERVICE CENTER LIST	1						
7	VQC4626	SAFETY CARD	1						
8	VQA0690	GUARANTEE	1						
9	7G1A653A	SEAL	1						
10	VPG0R46	PACKING CASE	1						
11	PE45X63C05B	POLYETHYLENE BAG	1						
12	VPN5921	CUSHION (FRONT)	1						
13	VPN5922	CUSHION (REAR)	1						
14	PE35X50C05B	POLYETHYLENE BAG	1						
15	VPN6013	SLEEVE (CORD)	1						
16	VQL9823	PAKING LABEL	2						

ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.	Part No.	Part Name & Description	Pos	Remarks	Ref.No.	Part No.	Part Name & Description	Pc	s Remarks
iver.ivo.	rait No.	r art Name & Description	1 03	Kemarks	R29	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300		1 Nemarks
E1	SVEP20970A	HD CONT SW P.C.BOARD	1	(RTL)	R30	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	+	1
				,	R31	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	1	1
E2	SVEP20973A	HD CONT I/F P.C.BOARD	1	(RTL)	R32	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K		1
					R33,34	ERJ3GEYJ201	M.RESISTOR CH 1/16W 200	2	2
E3	SVEP20988A	CONNECTOR P.C.BOARD	1	(RTL)	R35 R36	ERJ3RED200	M.RESISTOR CH 1/16W 20	1	1
E4	SVEP20989A	JOYSTICK P.C.BOARD	1	(RTL)	R37	ERJ3GEYJ104 ERJ3GEYJ301	M.RESISTOR CH 1/16W 100K M.RESISTOR CH 1/16W 300	+-	1
	012.200001	00101101111010071110	·	(1112)	R38	ERJ3GEYJ201	M.RESISTOR CH 1/16W 200	٠	1
E5	SVEP20991A	SD CARD P.C. BOARD	1	(RTL)	R39	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	1
					R40	ERJ3GEYJ201	M.RESISTOR CH 1/16W 200	,	1
E6	SVEP26275B	ROP CPU P.C.BOARD	1	(RTL)	R41	ERJ3RED200	M.RESISTOR CH 1/16W 20	1	
					R42,43 R44	ERJ3GEYJ104 ERJ3GEYJ301	M.RESISTOR CH 1/16W 100K M.RESISTOR CH 1/16W 300	1	1
					R46	ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	+-	1
					R47	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	1
					R48	ERJ3RED200	M.RESISTOR CH 1/16W 20		1
					R49	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K		1
					R50	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	+ '	1
					R51 R52	ERJ3GEYJ201 ERJ3GEYJ301	M.RESISTOR CH 1/16W 200 M.RESISTOR CH 1/16W 300	+	1
					R52	ERJ3GEYJ301 ERJ3GEYJ201	M.RESISTOR CH 1/16W 300 M.RESISTOR CH 1/16W 200	+	1
E1	SVEP20970A	HD CONT SW P.C.BOARD	1	(RTL)	R54	ERJ3RED200	M.RESISTOR CH 1/16W 20	t.	1
					R55,56	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	2
	_				R57	ERJ3GEYJ201	M.RESISTOR CH 1/16W 200	Ľ	
		T.CAPACITOR CH 16V 10U	1		R58	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K		
C2,C3		C.CAPACITOR CH 25V 0.1U T.CAPACITOR CH 16V 10U	2		R59,60	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	2	
C4,C5 C6-16	ECST1CX106Z ECUX1E104ZFV	T.CAPACITOR CH 16V 10U C.CAPACITOR CH 25V 0.1U	11		R61-64 R65	ERJ3GEYJ104 ERJ3GEYJ301	M.RESISTOR CH 1/16W 100K M.RESISTOR CH 1/16W 300	-	1
C0-16		E.CAPACITOR CH 25V 0.10	11		R66	ERJ3GEYJ301 ERJ3GEYJ201	M.RESISTOR CH 1/16W 300 M.RESISTOR CH 1/16W 200	٠	1
C18		C.CAPACITOR CH 25V 0.1U	1		R67	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	1	1
C19	ECST1CY685Z	T.CAPACITOR CH 16V 6.8U	1		R68	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	1
C20-27	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	8		R69-71	ERJ3GEYJ201	M.RESISTOR CH 1/16W 200	3	3
C28-30	ECST1CY685Z	T.CAPACITOR CH 16V 6.8U	3		R72	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	1	
C31	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1		R73,74	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	_	2
D1	B3ABA0000218	LED	4		R75,76 R77	ERJ3GEYJ301 ERJ3GEYJ104	M.RESISTOR CH 1/16W 300 M.RESISTOR CH 1/16W 100K	1	
D1 D2	B3AAA0000218	LED LED	1		R78	ERJ3GEYJ104 ERJ3GEYJ301	M.RESISTOR CH 1/16W 100K M.RESISTOR CH 1/16W 300	+	
D3,D4	B3ABA0000232	LED	2		R79	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	+	
D5	B3ACA0000034	LED	1		R80	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	1	1
D6-D9	B3ABA0000218	LED	4		R81-92	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	12	2
D10	MA142WK	DIODE	1		R93-97	ERJ3RED200	M.RESISTOR CH 1/16W 20		5
D11-19	B3ABA0000218	LED	9		R98	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	1
104	TC7S08F	IC	_	C0JBAA000095	R99 R100	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	-	
IC1 IC2	C0DBZGH00001		1	C0CBADC00010	R100	ERJ3GEYJ104 ERJ3GEYJ301	M.RESISTOR CH 1/16W 100K M.RESISTOR CH 1/16W 300	+.	'
IC3	C0JBAZ001388	IC	1	0005/15000010	R102	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	١.	
IC4		IC	1		R103	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	1	1
IC5	M66311FP	IC	1	C0HBZ0000021	R104	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	1
IC6,C7		IC	2		R105	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	1	1
IC8		IC	1	C0HBZ0000021	R106		M.RESISTOR CH 1/16W 100K	Ľ	1
IC9		IC IC	1	COUR 70000034	R107	ERJ3GEYJ301	M.RESISTOR CH 1/16W 300	1	1
IC10,11	M66311FP	IC	2	C0HBZ0000021	R108 R109	ERJ3GEYJ104 ERJ3GEYJ301	M.RESISTOR CH 1/16W 100K M.RESISTOR CH 1/16W 300	+	1
J1-J6	K1KB05A00029	CONNECTOR (FEMALE)	6		R110-33	ERJ3GEYJ301 ERJ3GEYJ201	M.RESISTOR CH 1/16W 300 M.RESISTOR CH 1/16W 200	24	4
							2.2.2	1	
P1	K1KA32B00034	CONNECTOR (MALE)	1		SW1,W2	VSP0599	SWITCH	1 2	2 K0F111A00115
					SW3	K0F111A00120	SWITCH		1
Q1-Q5	2SB1218ALL	TRANSISTOR	5		SW4,W5	VSP0599	SWITCH	1 2	2 K0F111A00115
D4 D2	ED ISOEVODOS	M DECICTOR OLLAWOW	_		SW6	K0F111A00120	SWITCH	+	1 K0E111100115
R1-R3 R4		M.RESISTOR CH 1/16W 0 M.RESISTOR CH 1/16W 1K	3		SW7 SW8,W9	VSP0599 K0F111A00120	SWITCH SWITCH	+	1 K0F111A00115
R4 R5		M.RESISTOR CH 1/16W 10	1		SW10,11	VSP0599	SWITCH	1	2 K0F111A00115
R6-14		M.RESISTOR CH 1/16W 0	9		SW12	K0F111A00120	SWITCH	Ť	1
R15		M.RESISTOR CH 1/16W 100K	1		SW13-17	VSP0599	SWITCH		K0F111A00115
R16	ERJ3GEYJ201	M.RESISTOR CH 1/16W 200	1		SW18	K9AA01800001	SWITCH	,	1
R17		M.RESISTOR CH 1/16W 300	1		SW19,20	13AL0600040	SWITCH	2	2
R18		M.RESISTOR CH 1/16W 200	1		SW21,22	VSP0599	SWITCH	1	2 K0F111A00115
R19		M.RESISTOR CH 1/16W 100K	1		SW23 SW24	13AL0600040 VSP0599	SWITCH SWITCH	+	1 K0F111A00115
R20 R21,22		M.RESISTOR CH 1/16W 200 M.RESISTOR CH 1/16W 300	2		5VV24	v 3PU599	OWITCH	H	I NUFITIAUUTTO
R21,22		M.RESISTOR CH 1/16W 300 M.RESISTOR CH 1/16W 200	1		TP1	VJR0400B	TEST POINT	+	1 K9ZZ00000637
R24		M.RESISTOR CH 1/16W 300	1				-	1	
R25-27	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	3		VR1-R4	D2BFA14B0017	V.RESISTOR 10K	4	4
R28	ERJ3RED200	M.RESISTOR CH 1/16W 20	1	-	VR5,R6	D2BFA14B0016	V.RESISTOR 10K	2	2

		ĺ	T	l ·		I			
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
					C3	ECST1AY106Z	T.CAPACITOR CH 10V 10U	1	
		MISCELLANEOUS			C5-C7	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	3	
					C8	ECUX1H101JCV	C.CAPACITOR CH 50V 100P	1	
	VMX1858	LED SPACER	1						
	VMX3150	LED SPACER	17		D1-D9	MA147	DIODE	9	
			İ		D11	LNJ310M6URA	DIODE	1	
			t						
			H		IC2	C0JBAC000265	IC	1	
			<u> </u>					-	
			-		IC3	C0JBAA000182	IC	1	
			<u> </u>		IC5-C8	C0JBAA000182	IC	4	
E2	SVEP20973A	HD CONT I/F P.C.BOARD	1	(RTL)					
					L1	J0JBC0000019	FILTER	1	
			İ						
C1	ECST1CX106Z	T.CAPACITOR CH 16V 10U	1		P1	VJP2741A012	CONNECTOR (MALE)	1	K1KA12A00179
			1		P2	K1NA09E00002	CONNECTOR	1	
IC1	SN75C1168NS	IC	1		12	1111/105200002	CONTROL		
ICI	311/301100113	10	Ľ		0.4	0000050001	TRANSIOTOR	_	
			-		Q1	2SB095600L	TRANSISTOR	1	
L1-L4	J0JBC0000019	FILTER	4						
	1				R4	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
P1	K1KAA0A00035	CONNECTOR (MALE)	1		R5	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
P2	VJP1243T	CONNECTOR (MALE) 3P	1	K1KA03B00012	R6	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
P3		CONNECTOR (MALE)	1		R7	ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
			1		R10			-	
P4		CONNECTOR (MALE)	-			ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
P5	K1KA32B00034	CONNECTOR (MALE)	1		R13	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
P6	K1KA04B00066	CONNECTOR (MALE)	1		R14	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	_1	
	1		1		R16	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	<u></u>
PB1	VJB20973-2	HD-CONT I/F	1		R18,19	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	
	1		t		R20	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	D0GB103JA002
R1	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1		R21	ERJ3GEYG471	M.RESISTOR CH 1/16W 470	-	
	ERJ3GEYJ202		H		R21	ERJ3GEYJ103		-	D0GB103JA002
R2			1				M.RESISTOR CH 1/16W 10K	1	D0GB103JA002
R3-R5	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	3	D0GB103JA002	R23	ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
R7,R8	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	2						
R11	ERJ3GEYJ302	M.RESISTOR CH 1/16W 3K	1		TG1	EYF6CU	TEST POINT	1	
R12,13	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	2						
,			H						
					E6	SVEP26275B	ROP CPU P.C.BOARD	1	(RTL)
E3	SVEP20988A	CONNECTOR P.C.BOARD	1	(RTL)					,
	0 V E1 20000/1	CONNECTOR 1:0:BOARD	F.	(112)					
			ļ					_	
					BZ1	L0DCCA000002	BUZZER	1	
P100	LY8PDT1P1	CONNECTOR	1						
P200	K2LC108A0001	JACK	1		C1,C2	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	2	
P300	K1QBB4AA0004	CONNECTOR (FEMALE)	1		C3,C4	ECST1CX106Z	T.CAPACITOR CH 16V 10U	2	
P400	K1KA10A00140	CONNECTOR (MALE)	1		C5-C7	ECUX1E104ZEV	C.CAPACITOR CH 25V 0.1U	3	
. 100	141101107100110	CONTROL (III LEE)	H		C8	ECST1CX106Z	T.CAPACITOR CH 16V 10U	1	
			-						
					C9-25	ļ	C.CAPACITOR CH 25V 0.1U	17	
	1		1		C26	F2D1D1010001	E.CAPACITOR 20V 100U	1	
			1		C27,28	VCEA1AAP221	E.CAPACITOR 10V 220U	2	F2D1A2210001
			İ		C29,30	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	2	
E4	SVEP20989A	JOYSTICK P.C.BOARD	1	(RTL)	C31	+	T.CAPACITOR CH6.3V 10U	1	
		, , , , , , , , , , , , , , , , , , ,	t i	<u> </u>	C32	1	C.CAPACITOR CH 25V 0.1U	1	
	+		1					_	
	1		1		C33		E.CAPACITOR 20V 68P	1	
C1-C4	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	4		C34	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1	
	<u></u>		1		C35	ECST1CY685Z	T.CAPACITOR CH 16V 6.8U	_ 1	<u> </u>
J1	VJR1095	LUG TERMINAL	1		C36-38	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	3	
	1		t		C39	ECST1CY685Z	T.CAPACITOR CH 16V 6.8U	1	
P1	K1KAn4Rnnnee	CONNECTOR (MALE)	1		C40		C.CAPACITOR CH 25V 0.1U	1	
	111111111111111111111111111111111111111	OCIANECTOR (WALE)	H		l			-	
	1		₽-		C41-44	ECST1CC336R	T.CAPACITOR CH 16V 33U	4	
R1,R2	D2FDZ1400004		2		C45		C.CAPACITOR CH 25V 0.1U	1	
R3,R4	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2		C46	ECST1CY685Z	T.CAPACITOR CH 16V 6.8U	1	
					C47	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1	
S1,S2	VSS0160	SWITCH	2	K0D122B00055	C48	ECST1AY106Z	T.CAPACITOR CH 10V 10U	1	
	+		1					2	
53	K0D122A00079	SWITCH	1		C49,50		C.CAPACITOR CH 25V 0.1U	- 2	
	-		1		C51	ļ	T.CAPACITOR CH 16V 6.8U	1	
	<u> </u>		\perp		C52	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1	
-	1		1		C53	ECST1AY106Z	T.CAPACITOR CH 10V 10U	1	·
					C54	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1	
	1		t		C55	ECST1CX106Z	T.CAPACITOR CH 16V 10U	1	
C.C	EVED2004 A	en CABD B C BCARD	١.	(RTI)	l	+		-	
E5	SVEP20991A	SD CARD P.C. BOARD	1	(RTL)	C56	ECST1AY106Z	T.CAPACITOR CH 10V 10U	- 1	
	1		_		C57		C.CAPACITOR CH 25V 0.1U	1	
			L		C58	ECST1AY106Z	T.CAPACITOR CH 10V 10U	_ 1	<u> </u>
1	ECUX1C104KBV	C.CAPACITOR CH 16V 0.1U	1		C59	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1	
• •			t .	E41/404054000			C.CAPACITOR CH 50V 15P	2	
	ECUM1C105KBN	C.CAPACITOR CH 16V 1U	1	F1K1C105A026	C60,61				
C2	ECUM1C105KBN	C.CAPACITOR CH 16V 1U	1	F1K1C105A026	C60,61	200/111100001			

Ref.No.	Part No.	Part Name & Description	Pos	Remarks	Ref.No.	Part No.	Part Name & Description	Pos	Remarks
C62	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1		IC70	COJBAA000115	IC Description	1	Nomarks
C63,64	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	2		IC71	C0JBAA000102	IC	1	
C65	ECST1AY106Z	T.CAPACITOR CH 10V 10U	1		IC72	C0JBAF000315	IC	1	
C66	ECUX1H102JCV	C.CAPACITOR CH 50V 1000P	1		IC73	C0JBAE000140	IC	1	
C67	ECST1AY106Z	T.CAPACITOR CH 10V 10U	1						
C68,69	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	2		L1-L4	J0JBC0000019	FILTER	4	
C70,71	ECST1AY106Z	T.CAPACITOR CH 10V 10U	2		L5	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	D0YDR0000005
C72	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1		L6	J0JKB0000007	FILTER	1	
C74	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1		L7-13	J0JBC0000041	FILTER	7	<u>'</u>
C75 C76	ECST1AY106Z ECUX1E104ZFV	T.CAPACITOR CH 10V 10U C.CAPACITOR CH 25V 0.1U	1		P1	K1KBA0A00038	CONNECTOR (FEMALE)	1	
C77,78		C.CAPACITOR CH 50V 100P	2		P2	K1KA10A00140	CONNECTOR (MALE)	1	
C79,80	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	2		P3	K1KA20A00102	CONNECTOR (MALE)	1	
C81	ECST1VY105Z	T.CAPACITOR CH 35V 1U	1		P4	K1MN20A00036	CONNECTOR	1	
C82	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	1		P5	VJP4395C007	CONNECTOR (MALE)	1	
C87-19	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	33		P6	VJP2741B012	CONNECTOR (MALE)	1	K1ZZ00000984
C120	ECST1AY106Z	T.CAPACITOR CH 10V 10U	1						
C121-23	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	3		Q1	2SB1073-R	TRANSISTOR	1	
C124-35	ECUX1H101JCV	C.CAPACITOR CH 50V 100P	12		Q2	2SD601A-R	TRANSISTOR	1	
		21025			Q3	2SD1819A0L	TRANSISTOR	1	
D2	MA142WK-G	DIODE	1		D4	ED 1905V 1400	M DECICTOR OLLAWOW 101	١.,	D0CB403 IACO3
<u> </u>	KEH313300004	ELIGE	1		R1	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	D0GB103JA002
<u>(:)</u> F I	K5H312300004	FUSE	1		R2 R3	ERJ3GEYJ101 ERJ3GEYJ103	M.RESISTOR CH 1/16W 100 M.RESISTOR CH 1/16W 10K	1	D0GB103JA002
IC1	TVHT541FT	IC	1		R5	ERJ3GEYJ103 ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	D0GB103JA002
IC2	C0JBAA000102	IC	1		R6-11	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	6	5
IC3,C4	C0JBAA000115	IC	2		R12-15	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	4	D0GB103JA002
IC5	TVHT541FT	IC	1		R16-20	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	5	i
IC6	SN75C1168NS	IC	1		R21-23	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	3	
IC7-C9	C0JBAS000075	IC	3		R24-28	ERJ3GEYJ204	M.RESISTOR CH 1/16W 200K	5	
IC10	C0JBAA000115	IC	1		R29-33	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	5	
IC11	N0BG1CD00001	IC	1		R34	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	D0GB103JA002
IC12	C0AZCA000001	IC	1		R35	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
IC13	ļ	IC	1	C0CBADC00010	R36	D4FB2R300001	IC PROTECTOR	1	
IC14	C0FBBD000023	IC IC	1		R37 R38	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
IC15,16 IC17	TVHT244FT STK14C88N45	IC IC	1	C3ZAD0000015	R39	ERJ3GEYJ331 D4FB2R300001	M.RESISTOR CH 1/16W 330 IC PROTECTOR	1	
IC17	TLVX4245FS	IC IC	1	C32AD0000015	R40,41	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	,
IC19	TC7SZ08F	IC	1		R42	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
IC20	TVHT244FT	IC	1		R43-49	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	7	D0GB103JA002
IC21	HD64F2633TE	IC	1		R50,51	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	2
IC22	C3FBMD000029	IC	1		R52	D0GB123JA002	M.RESISTOR CH 1/16W 12K	1	
IC23	T55V16256T15	IC	1		R53	ERJ3GEYJ302	M.RESISTOR CH 1/16W 3K	1	
IC27	C0JBAC000265	IC	1		R54	ERJ3GEYJ201	M.RESISTOR CH 1/16W 200	1	
IC28,29	TC7WH125FU	IC	2		R55-58	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	4	D0GB103JA002
IC30	C0JBAA000102	IC	1		R59	ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
IC31	M51957BFP	IC	1	C0EBH0000062	R60	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	D0GB103JA002
IC35-38	C0JBAZ000852	IC .	4		R61	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	D00D400 I4000
IC39 IC40	C0JBAA000115 UPD4702G	IC IC	1	C0JBAK000059	R62,63 R68	ERJ3GEYJ103 ERJ3GEY0R00	M.RESISTOR CH 1/16W 10K M.RESISTOR CH 1/16W 0	1	D0GB103JA002
IC40	C0JBAK000060		1	000D/1/000009	R69,70		M.RESISTOR CH 1/16W 47K	2	
IC42,43	TC7SET32FU	IC	2		R71-76	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	6	
IC44	C0JBAB000007	IC	1		R77,78	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	D0GB103JA002
IC45	C0JBAA000115	IC	1		R79	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
IC46	UPD4702G	IC	1	C0JBAK000059	R80,81	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	D0GB103JA002
IC47	C0JBAK000060	IC	1		R86-13	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	28	D0GB103JA002
IC48,49	TC7SET32FU	IC	2		R114	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
IC50	UPD4702G	IC	1	C0JBAK000059	R115-28	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	14	D0GB103JA002
IC51	TC7SET32FU	IC	1		R129	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	DOOD400 IA TO
IC52	C0JBAE000087	IC IC	1	CO IB A KOOOOSO	R130-32	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	3	D0GB103JA002
IC53	UPD4702G	IC IC	1	C0JBAK000059	R133	ERJ3GEYG102 ER J3GEY J101	M.RESISTOR CH 1/16W 1K	1 8	
IC54 IC55	TC7SET32FU C0JBAE000087	IC IC	1		R134-41 R142-44	ERJ3GEYJ101 ERJ3GEYJ513	M.RESISTOR CH 1/16W 100 M.RESISTOR CH 1/16W 51K	3	
IC55	C0JBAE000087	IC IC	1		R142-44 R145-50	ERJ3GEYJ204	M.RESISTOR CH 1/16W 51K	6	
IC56	UPD4702G	IC	1	C0JBAK000059	R151-56	ERJ3GEYJ101	M.RESISTOR CH 1/16W 200K	6	
IC58	TC7SET32FU	IC	1		R157-61	ERJ3GEYJ204	M.RESISTOR CH 1/16W 200K	5	
IC59	C0JBAE000087	IC	1		R162,63	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	2	
IC60	C0JBAB000007	IC	1		R164-87	ERJ3GEYJ513	M.RESISTOR CH 1/16W 51K	24	i
IC61	UPD4702G	IC	1	C0JBAK000059	R191,92	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	2	
IC62	TC7SET32FU	IC	1		R193,94	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	
IC63	C0JBAE000087	IC	1		R195,96	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	2	
IC64	C0JBAA000115	IC	1		R197,98	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	
IC65	C1ZBZ0001561	IC	1		R199,00	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	2	
IC66	C0JBAZ000855	IC	1		R201,02	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2	
IC67-69	TC7SZ08F	IC	3		R203,04	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	2	
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Ref.No.	. Part No.	Part Name & Description	Pcc	Remarks		Ref.No.	Ref.No. Part No.	Dof No. Dart No. Part Name & Description	Ref.No. Part No. Part Name & Description Po
R205,06		M.RESISTOR CH 1/16W 0	2	Remarks	Ì	Rel.ivo.	Rei.No. Fait No.	Rei.No. Fait No. Fait Name & Description	Rei.NO. Fait No. Fait Name & Description
R207,08	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	2						
R209,10	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2						
R211,12		M.RESISTOR CH 1/16W 1K	2						
R213,14	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	2						
SW1	K0D141A00002	SWITCH	1						
SW2		SWITCH	1	K0D112B00056	I				
SW3-W5		SWITCH	3						
TP1	VJR0400B	TEST POINT	1	K9ZZ00000637					
TP2	VJR0400Y	TEST POINT	1	K9ZZ00000639					
X1	VSX0821	CRYSTAL OSCILLATOR	1	H0J160500014					
	V3A0021	CICIOTAL OSCILLATOR		1103100300014					
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